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ALITASH NATIONAL PARK AND LOCAL LIVELIHOODS IN QUARA OF NORTH-WESTERN ETHIOPIA: THE NEXUS

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ABSTRACT
Environmental resources are the foundation of social and economic development as they are the sources of goods and services needed for economic growth and development. Mutually supportive relationship between communities and nearby protected area is critical to the long-term success of conservation efforts and hence improve livelihoods of the local community, which is sensitive to environment. With aim to investigate the relation between the local livelihoods the Alitash National Park, cross-sectional study was conducted using both quantitative and qualitative approach. Wide range of methods and techniques were used to explore the required data. Based on primary and secondary data generated from household survey, focus group discussions, interview and observations the natural assets such as land, grazing and different forest products are emanated from Alitash National Park benefiting and shaping the livelihoods strategies of the local community in different ways.

KEYWORDS: national park, economic growth and development.

1. Introduction

Well protected and communally owned natural resources, can play a great role in meeting the immediate needs of the people and to exercise sustained livelihoods, while conserving the biodiversity and maintaining ecological balances. Angelsen *et.al* (2011), intensely reported that 10%-60% of income of households, which could significantly contribute to the livelihood could be generated from forest in developing countries, where forest and associated resources are owned and conserved by the local communities.

Alitash National Park (ANP), which is one of the biodiversity hotspots of the country, is part of the northwestern extensive lowland area of the Amhara National Regional State (ANRS), Ethiopia.The park shares the boundary with, in the West to Sudan (Dinder National Park of

Sudan), in the South, Benshangul Gumuz Regonal State, in the East Bambaho, and Gelegu and in North Mehadid and Bermil peasant associations (sub-districts) of ANRS.

In addition to the many fold environmental, biodiversity and buffer roles in preventing the desertification, ANP is source of critical natural assets and has provided divers opportunities to the livelihoods of the local community. The nexus between ANP and local livelihoods is robust in North-West and South-East parts of the park due the fact that existence of different rivers, which can support both livestock and human means of living. The association between ANP and the livelihood of local community could be explained into two ways; either by looking benefits gained and opportunities available before establishment or by looking assets and options given up after demarcation of the area as national park. However, there is no significant difference observed in the livelihood portfolios and strategies exercised due to existence of this protected area, except the options and different alternatives are compromised for the local community in the sense of the overambitious wildlife conservation goals, but with no genuine, feasible, participatory and long term strategies.

Apparently, it is important that to see the extent of interdependence of local livelihoods and the national park, looking the contribution with regard to creating livelihoods assets, the nature of livelihood strategies experienced by the community and the compatibility of existing strategies with conservation goals, livelihood options available to farming households and the contribution of the natural resources emanated from the park and its support in enhancing the resilience capacity of farm households in the time of shocks and stresses will help for better understanding.

Taking the multidimensional gaps observed and experienced, the objective of this paper is to shade light on the nexus between Alitash national park and the local livelihoods as it opens different opportunities to access natural assets and shape the living strategies with its implication on biodiversity conservation.

2. Methodology

Cross-sectional survey involving both qualitative (using case study, focus group discussion, in depth interview and on spot observations) and quantitative (mainly using survey questionnaire) were employed. Sustainable livelihood framework is used as analytical tool to guide the research process. In doing so, 153 households were randomly sampled out of the 5,572 households with population of 25,803, in the surrounding peasant associations.

Various techniques and tools were employed to generate the required data. For primary data, household surveys from 153 randomly sampled households around the park; four focus group discussions (FGDs) of different representations of the community and key informant interview with different government officials at different levels and expertise from the park and well experienced individuals for detailed qualitative investigation were conducted. Observation of vegetation, wild lives, settlement patterns, farming systems; natural resources conservation practices, particularly forest management and its coverage, and housing conditions in and around the park was conducted.

The secondary data, which were collected for different purposes are used in this research. The data such as reports of the park, policy documents, working papers, guidelines, assessment

reports, and government reports at different level and published and unpublished research outputs, which are found to be relevant were also explored.

2.3 Data Analysis

The quantitative data were analyzed using Statistical Package for Social Science (SPSS) and different descriptive and inferential statistical analysis were employed. The results of analysis were interpreted and discussed using descriptive statistic. To see significant differences in different groups, logistic regression to determine the relationship between different socio-economic variables, which have direct impact on the livelihoods and conservation of the park were employed. The data obtained using focus group discussion, key informant interview and observations were analyzed qualitatively.

3. Results

3.1 Alitash National Park and Livelihood Assets

Diverse livelihood portfolios, strategies exercised and the attainment of the required livelihood outcomes of farming households is mainly the response of available assets, which could be grouped into five broader categories, i.e. human, social, natural, financial and physical assets (DFID, 1999).In the communities, where human and physical assets such as infrastructure, appropriate agricultural technologies and other welfare services are minimum, natural assets have the multiplier effect in supporting nature dependent and traditional agricultural based livelihoods. Nevertheless, availability of different assets, which can substitute or used as entry to get others vary from place to place. Similarly, natural resources endowments also vary in terms of availability and entitlement of the local community to be benefited out of it.

ANP is serving as the major source natural and associated assets to the local community dwelling around and inside it. It is the source of rural energy for the communities adjacent to it. Among the areas studied, the household energy demand of the Bermil (Northern part of the park) community is entirely dependent on the park. The role of the park in providing grazing for the livestock and as source of water to the surrounding farming community is indispensable. The North-Western and the Southern extremes of the national park are very important sources of water and grazing. This is because, the two poles (opposite sides) of the park are the areas, where rivers namely, Ayma and Shaho (Gelegu) in Western and Northern respectively are found and have provided sustainable water for human and livestock throughout the year. Following the downstream of Shaho and Guang rivers (the area locally called Mejale), the grasslands remain evergreen and palatable to livestock, especially when the other parts remain dry or with shortage of water. The area is used as the major source of animal grazing during the dry seasons and people move their livestock to those areas not only farmers from the district, but also from neighboring districts of Metema and Chilga.The data generated from survey also revealed that 56.4% and 33.8% of household respondents confirmed ANP and grazing is associated and highly associated respectively. The ordinal regression model has also supported the fact that the contribution of ANP with grazing is significantly (P= 0.034) associated.

The important natural resource around and inside the ANP is the existence of diverse fish stock mainly from Shaho, Ayma, Alitash and Nijil rivers. The existence of more than 16 identified species has been served as important asset for the local community and substantiated the livelihoods nearby communities, especially whose livelihoods are dominantly dependent on hunting and collection of natural products.

In addition to open grazing, water and fish resources, different edible wild fruits locally known as *Enkoy, Sorkin, Banba, Kumer, Ashama, Chibeha , Diza, and* many others*;* tubersknown as *Sinsa (wild yam), Chawle, and Ambakua;* Vegetables such as *Kudra, Selselo, Andera and* wild Okraare some to be mentioned. In the study districts and inside ANP, following the wet and humid seasons specially, Jun, July and August harvesting wild mushroom is also common. It is also acknowledged that some of traditionally identified fruits, tubers and vegetables collected from jangle and consumed by the local communities around ANP have medicinal values to cure different illness and immunize towards certain diseases.

(a) (b (c)

From left to right, (a) wild fruit (Ashama), (b) vegetable (Kudra), and (c) Tuber (Sinsa or wild yam), Photo by Genanew Agitew, June, 2014.

The study conducted by Getachew *et al* (2013) in Southern Ethiopia supports and boldly acknowledges the diverse potentials and utilization of different wild edible and semi-edible plants.

Land, which is the central to economy, social and political spheres of community, society and nation at large is crucial asset. For farming households, whose livelihoods is entirely dependent on nature based production system, land play pivotal role in shaping and directing the living situations(Girma et al, 2013). In the areas, where there exist weak institutional capacity and land administration systems, poor enforcement of land use regulation, and in the absence of clear land valuation and taxation systems, it is always the source of conflict and social unrest. It is also argued that failure to have proper land policy administration in Ethiopia resulted in massive deforestation (Melaku, 2003).The study area experiences the worst situation with regard to land,

which emanated from absence of formal application of land use administration. Quoting different authors on property rights over land and other natural resources, Crewett et al (2008) identified open access (no rights defined), public (held by the state), common (held by a community or group of users), and private (held by individuals or "legal individuals" such as companies) property regimes as broader classifications. Bringing it to our study areas, in most cases, the first type of classification describes best, despite the fact that land tenure system of the country, which boldly claims public ownership and usufruct right of the beneficiaries. The land registration and certification, which is first step of formal land administration and use, is not in place and people owned land just by claiming using traditional ways. This has resulted in disparity with range between landless and 50 hectares of land ownership per household among smallholder farming community. Except in the resettlement areas, people in most cases have implemented application of informal land ownership procedure.

In one or another ways, the landlessness is becoming the emerging challenge to rural areas, where agriculture as major source of livelihoods is potentially to persist. Taking existing evidence from Sub-Saran Africa, Ellis (2005), predicted that the next generation will not be so lucky, and intergenerational tensions about the future disposition of land rights are prevalent everywhere. The data generated from randomly sampled household, support the fact by showing that 15% of households sampled do not have agricultural land. It is also understood that despite the higher variation in ownership on size of land between households, agricultural landlessness especially, among younger segment of the population is increasing from time to time. The quest to fill the gaps between the ever increasing need of land and demand of expanding agricultural to produce cash crops and domesticate livestock have become realized on the expense of ANP.

Rural-Urban Linkage (RUL) play pivotal role in the overall transformation of the rural areas. Ellis (1999), noted that infrastructure (roads, power, and communications) has a powerful effect on mobility and choice, it also continues to merit priority. On the other hand, Getnet & Mehrab (2010) strongly argued that rapid advances in transport and communication increasingly bind together geographically distant communities and open new opportunities for exchange. They also noted statistical evidence showing that the Ethiopian current capacity for creating a reasonable basis for rural-urban economic linkage is limited. This has an adverse impact on the nonfarm economy. Poor labor and land productivity cannot release labor and transfer capital for nonfarm activities. As the case in many remote areas of the country, the study area have experienced the same due to limited availability and access to physical assets including, affordable energy, road connecting resources and human from different parts, telecommunication services and affordable potable water. Except Gelegu and some parts of Bambaho village around the park, there is no road sustainably connecting people and only the dry weather roads if any. Most of the households drink river water fallowing the Shaho and Aymma Rivers whereas few resettlement sites have access to hand dug wells with unbalance in water points and population. Absence of electricity is also found to be the threat to local community as well as for the conservation works of the park. It is also understood that unavailability of electricity is the major cause for the local energy demand to be dependent on natural forest and forced local people to go inside the park and collect fuel wood.

3.2 Livelihood Strategies

The livelihood strategy is important concern in the livelihood studies, which can be shaped by different factors such as the context in which people are operating, the assets available and anticipated objectives of the individual and households (Gillespie et al 1994). According to DFID (1999), livelihood strategies denote "the range and combination of activities and choice (including productive activities, investment strategies, and reproductive choices, etc.) that people make/ undertake in order to achieve their livelihood goals.

It is apparently understood that the existence of ANP as the major source for important livelihood assets, as context with different biophysical features, and as institution mediating the process is conditioning and shaping the livelihood strategies and outcomes. In agriculture based livelihoods, agricultural extensification, intensification, diversification and migration are the important strategies exercised by farm households (Ellis, 2003; Malmberg and Tsegaye, 2006). In broader sense, livelihood strategies of farm households in the study area follow the same pattern but contextualized based on environmental and socio-economic setup of the area.

The livelihood strategies of the farming community, who are closely proximate to ANP can be classified as sole crop production, animal domestication, mixed faring and hunting and collection. The following sections describe agricultural based livelihood strategies of farming community around the national park.

Crop Cultivation

Crop cultivation is one of dominant livelihood activities of farm households. The wide ranges of crops are grown and being cultivated exclusively by considerably larger proportion of the farming community using traditional methods except very few small scale irrigation schemes users. In addition to fulfilling the consumption demand, nearly 90% of households mainly earn their income from sale of crops. Cereals (mainly sorghum and *teff*), oilseeds especially sesames, which is the most important cash crop of the region, vegetables, fruits (banana, and mango by using small scale irrigation schemes following the Shaho and Ayma rivers) and cotton from industrial crops are mainly grown. Shifting cultivation by clearing the natural forest and rotating between different plots of land and crops is not uncommon in the area. This type of the cultivation coupled with higher and ever increasing population has resulted in an increasing demand for additional land and in turn has exerted pressure on the national park, which have adversely affecting the conservation biodiversity.

(a)

(b)

Dominantly cultivated crops: (a) Sorghum and (b) Sesame, photo by Genanew Aigtew, September, 2014

Livestock Production

ANP and its surrounding is the major source of open grazing and water resources combined with conducive agro-ecology for livestock production. Consequently, livestock production is the important agricultural based livelihood activity within and around the national park. The livestock production mainly includes production of cattle, sheep and goat. The*Felata* community members, who have lived inside the park for more than 46 years by moving in and outside the park on seasonal basis, are exclusively engaged on livestock production with very huge livestock population, having 500 to 5000 sheep and got, 100 to 1000 cattle per household. However, the livestock population of indigenous people settled around the national park is small in number compared to *Felata* community. Important but less recognized livelihood activity in the study area is fishing using diverse and huge reserve of fish following the Shaho, Ayma, Nijil and Alitash rivers. Nevertheless, it is seasonal, open to all interested people, illegal, unreported by concerned bodies and unregulated. This has adversely affected the environment, livestock and clearly unknown consequence on human health. The fishermen in the study area are using devastating chemicals, plant species and other unknown poisons to catch fish. Since the poisons are non-selective of fish, it is damaging species and aquatic biodiversity forever and the effect is being extended to the human and animal health. The case in Ayma River is the worst and many livestock have died of drinking the river water poisoned to catch fish. The same practice inside the park by illegal hunter is also adversely affecting forest and wildlife population.

Mixed farming

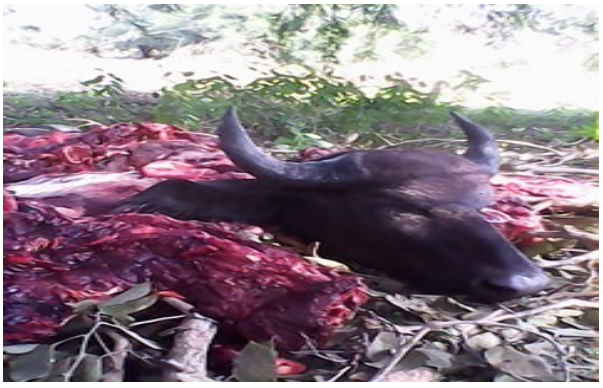
The number of households engaged in crop cultivation and livestock production as the only agricultural based livelihoods strategies in the study areas is very small in number compared to those undertake mixed farming of crop cultivation and animal production as major and minor respectively, representing 78.4% of population. Cultivation of different corps parallel to animal production is mainly for consumption and earning income if there exists any surplus production

except, sesame and cotton, which are mainly cultivated for market. Livestock is largely for saving purpose and used as financial assets, which can be easily liquidated into other livelihood asset when the need arise. Mixed farming livelihood strategy in the area is also used due to complementary interaction and interdependence between crops and livestock. Without the livestock (for instance oxen), the major traction power, crop cultivation is impossible. The surplus and/or market oriented crop production on the other hand is also precondition to have livestock as form of important financial capital stock. The quantitative data generated from household survey of this study supports the fact indicating that the number of livestock available, which is the result of surplus cereal and/or cash crop production is positively correlated with households' income ($p=0.001$) significantly.

Hunting and Collection

Hunting of different wild animals and collecting the products of forest is the important livelihood strategy experienced by different community members around and inside ANP. It is seasonal and hidden livelihood strategy among the local community members and supplementary to crop and livestock production. The three dominant indigenous ethnic groups namely, *Gumuz, Amhara and Agew* have more in common to exercise hunting. It has both economic and social values- economically, as the sources of food and income and socially, to be recognized as brave and respected by the member of the community.

The objective, type and magnitude of hunting are diverse. Buffalo, Giraffes, Deer, Antelope, Lesser Kudu, Wart hog, and many others have hunted and used for immediate consumption, whereas hunting and killing lions have social values due to the fact that the one who killed lion is considered as brave and respected. Consequently, funeral ceremony upon his death will be marked as the death of brave. Taking this social motive, people especially, the youth strive to kill lions. On the other hand, hunting elephants has both social and economic benefit. Elephants are hunted because the teeth are highly valuable and demanded in black market with higher and rewarding price. The potential target area of hunting to fulfill these multiple objectives of community members is ANP.



Buffalo meat, killed by hunters and being divided among them. Photo by Genanew A, April, 2014.

Unlike hunting, the objective of collecting forest production is limited to economic significance. Different empirical works (Falconer et al, 1988 & Ermias, 2011) have boldly acknowledged the

contribution of the wild edible fruits and many other forest products to meet the gaps in household food insecurity. Similarly, people in the study areas collect edible wild fruits, tubers such as wild yam and forest honey mainly for immediate consumption to fill household seasonal food gaps. It is also found to be collection of lowland bamboo tree and timber trees is also important source of income for households, particularly for *Gumuz* Community members, who are relatively in lower economic status compared to the other ethnic groups.

4. Conclusions

Apart from many fold roles in biodiversity conservation and prevention environmental problems, protected area such as national parks have contributed also in supporting the livelihoods of local community in different ways and there exists highly interdependent association. These areas serve as important sources of different natural assets, in which the lives of farming community generate different livelihood portfolios and meet the immediate needs. The areas, which are adjacent to national parks and sharing boundaries, generate different livelihoods asset such as water, grassland, different fruits and wildlife for different benefits. The energy demand of farm households is also predominantly dependent on protected areas or national parks. The situation is exacerbated and people have become more dependent due to absence of electricity or any other alternative energy sources to the local communities.

In addition to being served as the important sources of livelihoods assets including land, protected areas shape and direct means of living to nearby or inside dwellers. The context and resources available from ANP have directed farm households to exercise diverse livelihood strategies. The agricultural based livelihood strategies such as crop production by bringing more land into production with system of shifting cultivation; livestock domestication including fishing and hunting and collection of different forest products are not uncommon. On the other hand, fastest population explosion, which emanated from unplanned massive resettlement around the park is adversely affecting the conservation endeavors.

The good things out of protected area and national parks is that there is great opportunities to exercise environment friendly and organic agriculture using the forest products using multiple purpose trees and honey production from jangle. If it is genuinely planned and implemented, it could have double benefit in preserving biodiversity and promoting organic and climate smart agriculture.

5. Recommendations

The establishment and demarcation of boundaries of the national park did not consider the settlement pattern, the base and strategies of local livelihoods. This has resulted in mismatch between conservation goals and living demands, costs and existing livelihood experiences of people, especially in the North-West and South-West parts. This requires due attention of government and activities to redesign the sustainable strategies with full participation of the local communities.

Physical asset such transportation and communication facilities, which can help to diversify the livelihood by opening non-agricultural livelihood options to the local communities are limited

and forced to exercise traditional and nature dependent agricultural activities. Therefore, taking this multiple advantage, due attention should be given to development of infrastructure.

Using different rivers inside and nearby ANP, traditional, which is uncontrolled, unregulated and unreported fishing is common in the study areas. It has also been affecting the environment, aquatic resources diversity, health of human and both domestic and wild livestock and sustainability of production and conservation of biodiversity. To avoid those pressing problems and for better future, urgent intervention from conservation activists, government and non-governmental organizations by creating awareness, introducing modern and sustainable fish production practices is important.

The energy demand of farm households of local community nearby ANP for construction of the houses, cooking and lighting purpose is entirely dependent on natural forest. Consequently, people obliged to cut indigenous tree inside and on the border of the park, which is against the conservation objectives. To get rid of these devastating compulsory activities, promoting and introducing alternative energy sources such as bio-fuel/biogas, solar, wind technologies and provision hydroelectric power is highly required.

To realize the dual benefit of ANP both in conservation natural resources and maintaining the sustainability the local livelihoods, there are great opportunities to exercise environment friendly, agriculture such as conserving wild edible fruits, vegetables tubers and honey production from natural jangle. The existence of such latent resources could balance seasonal household food security gaps and contribute for organic agriculture. To this effect, promoting organic honey production and liking the local communities with forest products attaching with market chains will have double edged benefit for sustainable agriculture and environmental conservation.

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